Lab 1
CPSC 1021- Spring 2017

CLEMSON
School of COMPUTING

Due Date: Thursday, January 19, 11:59:59, midnight

Introduction

Welcome to CPSC 1021, the required companion laboratory for CPSC 1020. Today's lab is largely housekeeping—you are going to make sure that you have the necessary tools and accounts set up for the lab.

Many of you took CPSC 1010 or 1110 and are familiar with the environments used in labs. If you are new, welcome! The first thing you probably notice is that the computers in this lab are running Linux. If you have not used a Linux environment before, you will need to complete the **Linux Introduction** at the end of this lab. If you are already familiar with the School of Computing servers you may skip the Linux Introduction section.

Lab Objectives

- Meet your lab instructors and verify contact information
- Verify that you can log onto the lab machines
- Read and understand the lab policies as posted in the lab syllabus
- Verify your ability to submit a file via Handin

Prior to Lab

- Read the lab syllabus that has been posted on the labs Canvas page

Lab Instructions

Part 1: Syllabus

For the first part of this lab your lab instructors will introduce themselves and then go over the lab syllabus.

Part 2: Not So Typical HELLO WORLD program

Create a directory called cpsc1021Labs. Change directory into this folder and create another folder called Lab1. Use this folder to store Lab1 files.

Although this semester we will focus mostly on C++, we will spend the first couple weeks reviewing a few 'C' concepts. Therefore, we will write a simple 'C' program. You will need to open your favorite editor and write a program that prints an asci art HELLO WORLD!. Each

letter in the words will be formed using its own letter of the alphabet. In other use ‘H’ to create the H in Hello. The following is a sample output:

```
H    H    EEEEE    L        L          OOO
H    H    E        L        L        O    O
HHHHH     EEEE     L        L        O    O
H    H    E        L        L        O    O
H    H    EEEEE    LLLLL    LLLLL     OOO


W       W     OOO     RRRRR    L         DDDD     ! !
W       W    O   O    R    R   L         D   D    ! !
W   W   W    O   O    RRRR     L         D   D    ! !
 W W W       O   O    R R      L         D   D    ! !
  W W         OOO     R    R   LLLLL     DDDD     oo
```

- Your program should be well documented and include a header.
- Your program should consist of proper and consistent indention. Ex. You should choose a number of spaces to indent - 3, 4, or 5 - and be consistent.
- No lines of code should be more than 80 characters.

Below is an example of a program that meets each of the above formatting requirements:

```
/*This is a simple program that prints hello world a specific
number of times. A for loop is used to print the statement
10 times.*/

/*******************
  your name
  username
  Lab 1
  Lab Section:
  Name of TA
*******************/
#include <stdio.h>

int main()
{
    int i = 0;

    for(  ; i < 10; i++)
    {
        printf("hello world\n");
    }
    return 0;
}
```

Submission Instructions

- Use the tar utility to tar.gz your helloWorld.c file
    - tar –czvf helloWorld.tar.gz helloWorld.c
- Use handin(http://handin.cs.clemson.edu) to submit your helloWorld.tar.gz file

Linux Introduction

How to login

On the login screen enter your CU username and password.

Managing Files and directories

Creating directories

- Open a terminal window – ask the TA to help you if you cannot find the terminal – the terminal will open to your *home directory*.
- Enter the *pwd* command. (It stands for "print working directory"). The working directory should be "/users/*your_username*". This is also known as your *home directory*. All your files and directories will be kept in a directory tree with this directory as root.
- Enter *mkdir cpsc1021Labs* to create a directory for your labs this semester.
- Enter *ls* to list the contents of the current directory. You should see the new *cpsc1021Labs* directory.
- Now you need to move into that directory. Enter *cd cpsc1021Labs* to change to the *cpsc1021Labs* directory.
- Enter *mkdir lab1* to create a folder for today's lab.
- Enter *mkdir temp* to create a temporary directory. (you will learn how to remove this file in a bit)

Creating Files

- Open *gedit* – if you do not know how to do this ask a TA to help you.
- You can use gedit to create and edit any type of text files including C and/or C++ programs. For now, create a file named *test.txt* and save it in cpsc1021Labs/temp/.
- In a terminal window, cd to your cpsc1021Labs/temp/ directory.
- Type ls to see a list of the files in the cpsc1021Labs/temp/ folder. You should see your test.txt file. If it is not, go back to *gedit* and save it there now.
- Now in the terminal window type *nano test.txt or pico test.txt*. This should open your file in a text-based editor. You can edit your files this way without *gedit*. Feel free to make changes.
- Use the commands at the bottom to save and exit.
- You can also use *vim* instead of pico/nano when choosing a text-based editor. To use vim, type *vim test.txt*. There is a vim "cheat sheet" located at: http://www.cs.clemson.edu/~chochri/Courses/Documents/vimCheatSheet.pdf that you may use to get started with some of the more commonly used vim commands. (Thanks to Cathy Hochrine for the vim CheatSheet.)

Deleting Files and directories

- In the terminal window in the *cpsc1021Labs/temp/* directory, delete test.txt by typing *rm test.txt*
- Type the command you learned earlier to list files in a folder to confirm the file is gone.
- Leave the temp directory by typing *cd ..* (that is cd and two dots) to return to the parent *cpsc1021Labs* directory.
- Now delete the *temp* directory by typing *rmdir temp*. Notice that files are removed with *rm*, but directories are removed with *rmdir*.